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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 99-5335

Total Pages

First Named Inventor or Application Identifier

Dale C. McCarthy

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)
2. ☒ Specification (Total Pages)
(preferred arrangement set forth below)
 - Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
3. ☒ Drawing(s) (35 USC 113) (Total Sheets)
4. Oath or Declaration (Total Pages)
 - a. ☒ Newly executed (original or copy)
 - b. ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)
(Note Box 5 below)
 - i. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

ADDRESS TO: Assistant Commissioner for Patents
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6. ☐ Microfiche Computer Program (Appendix)
7. Nucleotide and/or Amino Acid Sequence Submission
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 - a. ☐ Computer Readable Copy
 - b. ☐ Paper Copy (identical to computer copy)
 - c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement (when there is an assignee) ☐ Power of Attorney
10. ☐ English Translation Document (if applicable)
11. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
14. ☒ Small Entity ☐ Statement filed in prior application, Status still proper and desired
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Other: _____

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No. 08 / 999,356

18. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Label

or ☒ Correspondence address below

(Insert Customer No. or Attach bar code label here)

NAME	William M. Hobby, III			
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STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c))—SMALL BUSINESS CONCERN

Docket Number (Optional)
99-5335

Applicant, Patentee, or Identifier: Dale C. McCarthy

Application or Patent No.: _____

Filed or Issued: _____

Title: BATTERY TERMINAL

I hereby state that I am

☐ the owner of the small business concern identified below:

☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN Centerpin Technology, Inc.

ADDRESS OF SMALL BUSINESS CONCERN 1101 Gulf Breeze Parkway, Suite 315
Gulf Breeze, FL 32561

I hereby state that the above identified small business concern qualifies as a small business concern as defined in 13 CFR Part 121 for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time, or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

☒ the specification filed herewith with title as listed above.

☐ the application identified above.

☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern, or organization having rights in the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization having any rights in the invention is listed below:

☒ no such person, concern, or organization exists.

☐ each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING Rip Hanks

TITLE OF PERSON IF OTHER THAN OWNER President

ADDRESS OF PERSON SIGNING 1101 Gulf Breeze Parkway, Suite 315
Gulf Breeze, FL 32561

SIGNATURE 

DATE

6/2/99

BATTERY TERMINAL

BACKGROUND OF THE INVENTION

The present invention relates to electrical connectors and especially to an electrical connector for coupling a single wire insulated electrical conductor to an electrical appliance. This application is a continuation-in-part of my previous patent application for Electrical Connector filed December 29, 1997, Serial No. 08/999,356 which is a continuation in part of previous patent application for Electrical Connector filed May 14, 1996, Serial No. 08/645,514, now U.S. Patent 5,704,814, dated January 6, 1998.

In the past, a wide variety of electrical wire connectors have been provided for connecting to wire ends. In a typical connector, the end of the wire is stripped of insulation and the bare wire is inserted into a connector where it can be soldered or clamped or otherwise attached to the connector. It is also common to tin the wire ends by coating the wire end with solder. A wide variety of connectors have been provided which removably hold the wire to the connector.

Typical electrical connectors are used in audio systems, such as in hi-fi speakers in which a wire end is stripped of the insulation and is inserted into an opening and then a threaded nut is used to removably attach the wire. Other connectors use spring clamps which allows a wire end stripped of insulation to be inserted into a connector opening with the spring clamp open and then releasing the spring clamp onto the wire. Reopening of the spring connector clamp allows the removal of the wire end. Other commonly

1 used connectors allow a stripped wire end to be
2 inserted into a conductive sleeve which is then
3 clamped with pliers to collapse a conductive sleeve
4 onto the wire. Automobile batteries are commonly
5 connected to the automotive electrical circuitry with
6 battery terminal connectors which are fixedly attached
7 to battery cables and mechanically clamped onto the
8 battery terminal posts.

9 Prior battery cable connectors can be seen in the
10 following U.S. Patents. The Potgieter U.S. Patent
11 number 4,270,827 is for a battery cable connector for
12 batteries commonly used in motor vehicles having
13 terminals in the form of cylindrical posts, which
14 connector includes a conical element which penetrates
15 the insulated wires of the battery cable end to spread
16 the wires out on all sides along a surface. In U.S.
17 Patent No. 1,856,018 an electrical connector and
18 terminal is shown which uses a conical wedge member
19 to lock the battery cable to the connector. In the
20 Anderson U.S. Patent Nos. 2,765,451 and 2,713,155, a
21 battery clamp uses a triangular tongue which is driven
22 into the end of the battery cable. U.S. Patent No.
23 1,258,304 is for a cable terminal which has a metal
24 end collar attached over the end of a battery cable
25 which is inserted against a piercing prong to make
26 conductive contact. U.S. Patent No. 1,247,656 to
27 Gadke is a terminal for conductors which has a
28 cylindrical sleeve which fits over the end of an
29 insulated conductor and a conical tip.

30 Prior U.S. patents which show electrical
31 connectors which used conductive prongs and which are
32 not used for battery terminal connectors may be seen
33 in the Chang U.S. Patent No. 4,013,333 for a wire
34 connector having two concentric sockets adapted to be

1 assembled one into the other and in which the inner
2 socket has a conductive needle mounted therein for
3 sliding a wire end into each end of the connector and
4 which uses a spike pressed into holes in the sleeves
5 to penetrate the coating of the wire ends. In the
6 Danner U.S. Patent No. 3,860,320, a dangler cathode
7 cable assembly is connected to a ball-like cathode
8 member by stripping the end portion of the cable and
9 inserting the end portion into a sleeve which is
10 pressed into an undersized tapered socket and which
11 has a pointed pin therein. In the U.S. patent to
12 Friedhelm, No. 4,786,760, a cable connector for a
13 piezoelectric cable has an insulated cable end which
14 is inserted into a sleeve. In the U.S. patent to
15 Berman, No. 4,091,233, an electrical connector and a
16 method of connecting an electrical cable to the
17 connector is provided for connecting one or more
18 insulated electrical cords or cables together. The
19 insulated cable ends can be inserted into the
20 receptacles on either end and onto a prong of
21 electrically conductive material so that the prong is
22 an electrical contact with the wire of an insulated
23 cord end. A container of adhesive material on the
24 end of the receptacle is released from the container
25 to create a physical bond between the cord and the
26 connector to hold the cord within the connector. In
27 my prior U.S. Patent No. 5,403,201, an electrical
28 connector is coupled to an insulated electrical
29 conductor without stripping the end of the insulated
30 conductor. The insulated wire is held with a spring
31 clamp which allows the wire to be released.

32 The Komada U.S. Patent No. 4,374,458 is for a
33 method of connecting a co-axial cable to a connector
34 having a plurality of connections. The Herrington U.S.

Patent No. 916,313 is for a spark plug having a spark plug wire connector on the end thereof. The Despard U.S. Patent No. 3,097,035 is for another electric cable connector for use between sections of flexible multi-conductor cable as used with portable electric power consuming equipment and to a fixed power outlet. The Polidori U.S. Patent No. 3,633,147 has a connector for underground utility applications.

SUMMARY OF THE INVENTION

An electrical connector is provided for coupling a single wire electrical cable to the terminal of an electrical appliance. The connector includes a body portion, a compression collar, and an end cap. The body portion has an elongated axis at one end of which is a battery terminal attaching portion and at the other end of which is a cable receiving portion that has a threaded outer surface and an internally positioned electrically conductive prong for penetrating the end of an electrical cable. The compression collar is sized to fit over an electrical conductor and has gripping fingers for engaging the surface of an electrical conductor. The end cap has an opening through which a cable can be inserted and includes threads on the inner surface for mating with the threads on the body portion. In practice, an electrical conductor is inserted through the opening in the end cap and through the compression collar and impinged onto the conductive prong of the body portion. Then the end cap is threaded onto the body portion, engaging the compression collar and forcing the gripping fingers of the compression collar into engagement with the surface of the electrical

1 conductor and thereby forcing the electrical conductor
2 into tight engagement with the conductive prong of the
3 connector.

4

5 BRIEF DESCRIPTION OF THE DRAWINGS

6

7 The objects, features, and advantages of the
8 present invention will be apparent from the following
9 written description, the claims, and the drawings in
10 which:

11 Figure 1 is an exploded sectional view of a
12 battery terminal in accordance with the present
13 invention;

14 Figure 2 is an exploded perspective view of a
15 second embodiment of the battery terminal of the
16 present invention;

17 Figure 3 is an exploded sectional view of a
18 battery cable having battery terminal connectors
19 attached thereto in accordance with the present
20 invention; and

21 Figure 4 is an exploded perspective view of
22 another embodiment of the battery terminal of the
23 present invention.

24

25 DESCRIPTION OF THE PREFERRED EMBODIMENTS

26

27 Referring to Figure 1 of the drawings, an
28 electrical connector 10 is illustrated having a
29 connector body 11 with a battery terminal connecting
30 portion 12 with an opening 13 which slips over the
31 post of a battery terminal and allows the connector
32 arm portions 14 to be pressed together to attach the
33 body 11 to a battery terminal post. The terminal
34 connector body 11 is generally made of an electrically

1 conductive material, such as lead, and the body 11 has
2 a bore 15 with internal threads 16 and a conductive
3 prong 17 attached to or integral with the body 11 and
4 extending axially into the bore 15. The terminal
5 connector of Figure 1 has a locking end cap 18 with
6 external threads 20 and having an opening 21 sized to
7 receive a battery cable 22 therethrough. The cable 22
8 may be without or with an insulated cover 23 over an
9 electrical cable conductor 24, as illustrated. A
10 compression collar 25 has a plurality of tapered
11 gripping fingers 26 and is sized to permit the cable
12 22 to pass therethrough.

13 In operation, the cable 22 is inserted through
14 the cap 18, through the gripping collar 25, and into
15 the bore 15 where it is driven upon the electrical
16 conductive prongs 17. The cap 18 has a tapered
17 internal surface 27 which drives against the tapered
18 gripping fingers 26 of the compression collar 25 as
19 the cap 18 is threaded onto the threads 16 of the body
20 11. This connector makes for a rapid connection of a
21 battery cable to a battery terminal connector and
22 allows for the rapid exchange of the terminal
23 connector should the terminal connector become
24 corroded.

25 Turning to Figure 2, a cable connector 30 is
26 illustrated for connecting two cables together end-to-
27 end and includes a center cable body 31 having
28 external threads 32 and 33 thereon and an electrically
29 conductive prong 34 on one end and an electrically
30 conductive prong 35 on the other end thereof. A pair
31 of gripping collars 36 and 37 each has a plurality of
32 gripping fingers 38 having pointed tips 40 for driving
33 into the insulation on a piece of cable 41 or 42
34 placed through the gripping terminals 36 and 37. The

1 cutting edges 40 will cut through the insulation on
2 the cables 41 and 42 to grip the electrical conductor
3 inside the insulation as well as hold the cable to
4 the central body portion 31. Locking caps 43 and 44
5 each have internal threads 45 which can be slid over
6 the cable 41 and 42. Cable 41 can be passed through
7 the gripping collar 36 and pushed against the
8 conductive prong 34 to make for an electrically
9 conductive connection. The fingers 38 can then be
10 compressed to compress the cutting edges 40 into the
11 cable 41. The cap 43 has its threads 45 attached to
12 the threads 32 to lock one end of the cable 41 to the
13 connector body 31. Similarly, the cable 42 is passed
14 through the locking cap 44, through the gripping
15 collar 37 and driven onto the electrical conductive
16 prong 35. The collar 37 can then be clamped onto the
17 cable 42 and the cap 44 threadedly attached to the
18 body 31 to connect two electrical conductive cables
19 together.

20 Turning to Figure 3, a battery cable 50 has
21 terminals on both ends. The terminal connector 51 at
22 the one end of the cable 50 is for attaching to a
23 battery terminal post and the electrical connector 52
24 on the other end of the cable 50 is used for attaching
25 grounding cable to the automotive chassis or to an
26 electrical conductor in the electrical system of a
27 car. The battery cable 50 has an insulation 54 and an
28 electrical conductor 55 therein. The electrical
29 connector 52 may be made of an electrical conductive
30 material having a body 56 with an aperture 57
31 therethrough for attaching to the chassis of an
32 automobile or the like. An internal bore 58 has
33 internal threads 60 therein and an electrically
34 conductive prong 61 protruding axially into the bore

1 58. A cable locking cap 62 has external threads 63
2 which mate with the internal threads 60 of the body
3 portion 56. A gripping collar 64 has a plurality of
4 angled gripping fingers 65 and has a generally
5 cylindrical body 66 extending through the bore 67 and
6 passing through the cap 62. A flanged area 68 holds
7 the gripping collar 64 along one end 70 of the cap 62
8 while a flared flange 71 extends over the edge 72 of
9 the cap 62. Holding the gripping collar 64 to the cap
10 62 in this manner allows the gripping collar to rotate
11 within the cap 62 within the bore 67. This in turn
12 allows the cable 53, once attached, to have a small
13 amount of rotational movement to prevent undue
14 stresses from building up on the connection to the
15 terminal portion 56. The cable 53 is inserted through
16 the gripping collar 64 in cap 62 and is impaled on the
17 prong 61. The cap 62 is then threadedly connected
18 with the body 56. The battery terminal connector 51
19 has a battery terminal opening 73 and has a bolt 74
20 and a nut 75 for drawing the arms 76 together in the
21 same manner as a conventional battery terminal.

22 Turning to Figure 4, a cable connector 80 for
23 connecting to the end of an electrically conductive
24 cable 81 includes a connector body 82 having an
25 attaching aperture 83 and external threads 84. The
26 body 82 also includes a plurality of gripping fingers
27 85 attached thereto and extending from one end thereof
28 which defines a cylindrical cavity 87 surrounding an
29 electrically conductive prong 86 extends therefrom
30 into a bore 87. A locking cap 88 has internal threads
31 which mate with the threads 84 and has a bore 90
32 extending therethrough. The cap 88 also has a wrench
33 gripping surface 91 thereon.

1 In operation, the cable 81 is passed through the
2 bore 90 within the cap 88 and pass through the
3 gripping fingers 85 and into the cylindrical cavity 87
4 where it is impaled on the conductive prong 86.
5 Tightening the cap 88 onto the threads 84 of the body
6 82 then compresses the fingers 85 onto the cable 81
7 passing therethrough to grip the cable 81 and hold it
8 to the terminal body 82 while providing an electrical
9 contact between the prong 86 and the cable 81. The
10 cable 81 may have outer insulation 92 with an internal
11 electrically conductive cable 93 or can be bare cable
12 93 as desired.

13 It should be clear at this time that an
14 electrical connector has been provided which is
15 especially adapted for attaching a battery cable to a
16 battery cable terminal connector and which
17 advantageously allows the cable to be connected and
18 disconnected for replacement thereof as desired and
19 which allows for the rapid assemble of a battery cable
20 to any length desired without having to premake the
21 cables in a wide variety of lengths. It should,
22 however, also be clear that the present invention is
23 not to be considered limited to the forms shown which
24 are to be considered illustrative rather than
25 restrictive.

26

CLAIMS:

I claim:

- 1 2. A battery cable connector comprising:
2 a body having threads formed thereon and having
3 an electrically conductive prong attached thereto
4 along an elongated axis of said body and extending
5 therefrom for piercing the end of an electrical cable;
6 a cap having threads thereon removably attached
7 to said body threads and having an opening
8 therethrough, said cap being aligned with said body
9 electrically conductive prong when said body cap is
10 attached to said body; and
11 a compression collar sized to fit over said
12 electrically conductive prong and over an electrical
13 conductor passing through said cap, said compression
14 collar having a conductor gripping means for gripping
15 and holding a conductor onto said body when said cap
16 is attached to said body over said collar, whereby an
17 electrical cable can be secured to said bottom
18 terminal connector.
- 1 3. A battery cable connector for coupling to one
2 end of an electrical cable in accordance with claim 1
3 in which said compression collar has a plurality of
4 fingers extending from the end thereof compressible
5 onto an electrical conductor passing therethrough.
- 1 4. A battery cable connector in accordance with
2 claim 2 in which each of said collar plurality of
3 fingers has an insulation penetrating point on the
4 end thereof positioned to penetrate into the
5 insulation on an insulated electrical cable passing
6 therethrough.

1 4. A battery cable connector in accordance with
2 claim 3 in which said collar is fixedly attached to
3 said body and extends over said prong extending from
4 said body.

1 5. A battery cable connector in accordance with
2 claim 3 in which said collar is fixedly attached to
3 said cap for compression onto an insulated conductor
4 extending therethrough.

1 6. A battery cable connector in accordance with
2 claim 3 in which said body had a bore extending
3 thereinto and said prong extends from said body into
4 said bore along the center axis of said bore.

1 7. A battery cable connector in accordance with
2 claim 1 in which said body has a pair of prongs
3 thereon, one extending in a generally opposite
4 direction from the other said prong.

1 8. A battery cable connector in accordance with
2 claim 6 in which said body has two sets of threads
3 and two threaded caps, one for threadedly attaching to
4 each set of body threads on each end of said body over
5 one of said pair of prongs.

1 9. A battery cable connector in accordance with
2 claim 3 in which said collar is shaped to fit over the
3 end of an insulated electrical conductor and be
4 compressed thereon.

1 10. A battery cable connector in accordance with
2 claim 1 in which said compression collar is rotatably
3 mounted to said cap.

1 11. An electrical connector for coupling to an
2 electrical conductor thereto comprising:

3 a body having an electrically conductive prong
4 attached thereto along an elongated axis of said body
5 and extending therefrom for piercing the end of an
6 electrical conductor being attached thereto; and

7 a body cap removably attachable to said body and
8 having an opening therethrough, said body cap having
9 a compression collar rotatably mounted through said
10 cap opening and sized to fit over an electrical
11 conductor passing therethrough, said compression
12 collar having a conductor gripping means for gripping
13 and holding a conductor thereto and onto said body
14 when said cap is attached to said body, whereby an
15 electrical conductor can be inserted through said body
16 cap and compression collar and onto said electrically
17 conductive prong and said body cap and collar attached
18 to said body to form an electrically conductive
19 connection to said electrical connector.

1 12. An electrical connector for coupling to an
2 electrical conductor thereto in accordance with claim
3 11 in which said compression collar has a flared end
4 portion to hold said compression collar in said body
5 cap from one end thereof.

1 13. An electrical connector for coupling to an
2 electrical conductor thereto in accordance with claim
3 12 in which said compression collar has a flange
4 therearound along the center portion thereof to hold
5 said compression collar in said body cap from the
6 other end thereof.

BATTERY TERMINAL1 ABSTRACT OF THE DISCLOSURE

2

3 A connector is provided for coupling a single
4 wire electrical cable to an electrical appliance. The
5 connector includes a body portion, a compression
6 collar, and an end cap. The body portion has an
7 elongated axis at one end of which is a battery
8 terminal attaching portion and at the other end of
9 which is a cable receiving portion that has a threaded
10 outer surface and an internally positioned
11 electrically conductive prong for penetrating the end
12 of an electrical cable. The compression collar is
13 sized to fit over an electrical conductor and has
14 gripping fingers for engaging the surface of an
15 electrical conductor. The end cap has an opening
16 through which a cable can be inserted and includes
17 threads on the inner surface for mating with the
18 threads on the body portion. In practice, an
19 electrical conductor is inserted through the opening
20 in the end cap and through the compression collar and
21 impinged onto the conductive prong of the body
22 portion. Then the end cap is threaded onto the body
23 portion, engaging the compression collar and forcing
24 the gripping fingers of the compression collar into
25 engagement with the surface of the electrical
26 conductor and thereby forcing the electrical conductor
27 into tight engagement with the conductive prong of the
28 connector. One embodiment provides for a cap having
29 the gripping collar positioned and held in the cap by
30 flanges loosely mated to the cap at each end of the
31 collar thereby to allow the cap to rotate
32 independently of the collar.

+

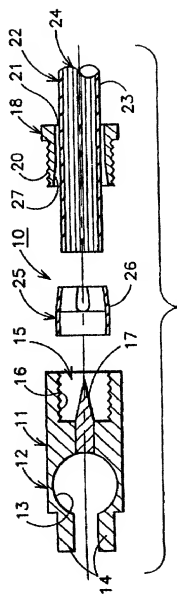


FIG. 1

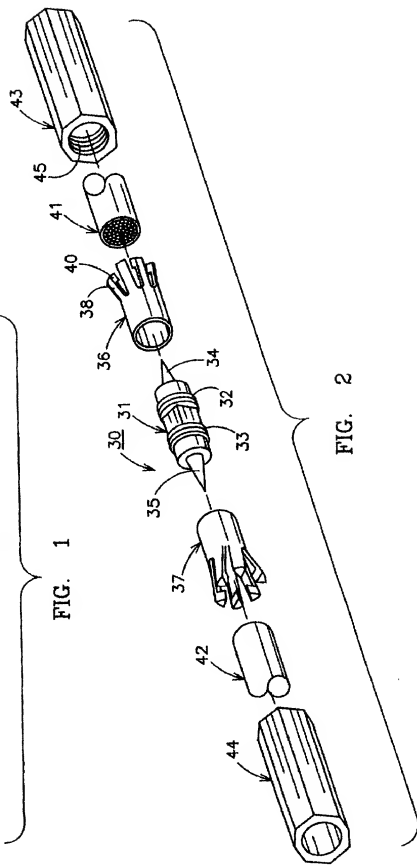


FIG. 2

+

+

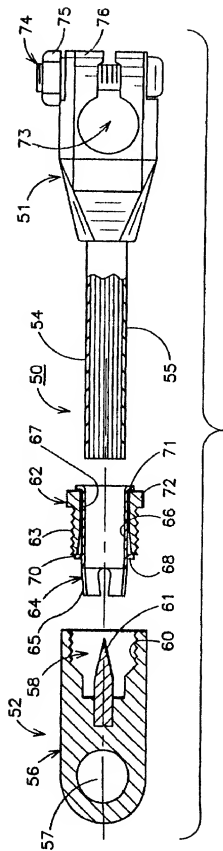


FIG. 3

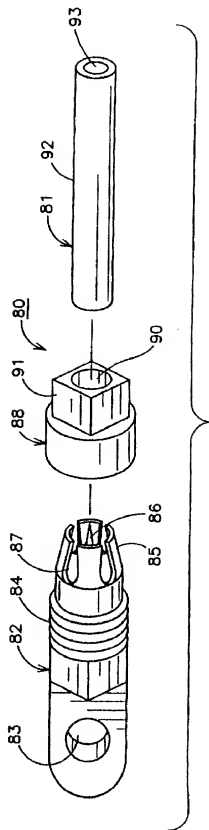


FIG. 4

+

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION	Attorney Docket Number	99-5335
	First Named Inventor	McCarthy, Dale C.
	COMPLETE IF KNOWN	
	Application Number	
	Filing Date	
	Group Art Unit	
	Examiner Name	

☒ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

BATTERY TERMINAL

(Title of the invention)

the specification of which

☒ is attached hereto
OR

☐ was filed on (MM/DD/YYYY) _____ as United States Application Number; or PCT International

Application Number _____ and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
			YES	YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
08/999,356 08/645,514	12/29/97 05/14/96	5,704,814

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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Name	Registration Number	Name	Registration Number
William M. Hobby, III	24,167		

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.Direct all correspondence to: ☐ Customer Number

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle (if any))		Family Name or Surname			
Dale C.		McCarthy			
Inventor's Signature	<i>Dale C. McCarthy</i>			Date	4/7/99
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☐ Additional inventors are being named on the supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto